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EXAMINER	
ABDULSELAM, ABBAS I	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/469,070
Filing Date: December 21, 1999
Appellant(s): WITZGALL, HANNA E.

Hanna E. Witzgall
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 27, 2006 appealing from the Office action mailed April 28, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The amendment after final rejection filed on September 14, 2006 has not been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

10-221710	Taketo et al.	08-1998
5,317,429	Mochizuki et al.	05-1994

(9) Grounds of Rejection

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 7, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taketo et al. (Japanese Publication # 10221710).

Regarding claim 7, Taketo teaches a color modulator (see the abstract, light control elements Drawing 1(10G, 10R, 10B)) comprising a substrate; and (see the abstract, a substrate 11 or 12, Drawing 1 (11, 12)) alternating layers of electrodes and dielectric materials (Drawing 1 (21, 22, 23M, 23 C, 23 Y), pixel electrodes, (21, 22), and light control layers (23M, 23 C, 23 Y) which contain dielectric multilayer film) wherein voltages applied to said electrodes are operable to filter an incident white beam of at least one of at least three colors (see the abstract, light control layers (23M, 23C, 23 Y) also contain dichroic mirrors (27G, 27R and 27B) whose reflection wavelength regions are made of respective green red and blue. Also see under "Detailed description", [0071]).

Taketo does not specifically teach voltage being applied to alter a refractive index of the dielectric material between the electrodes with respect to achieving primary colors.

However, as shown in the art rejection below, The main wavelength and bandwidth of a reflected wave length field of dichroic mirrors (27G, 27R, 27B) are controllable by the thickness of the film, ratio of each refractive index and ratio of thickness (see paragraph [0062] under "Detailed Description"). Taketo also teaches setting of dichroic mirrors (27G, 27R and 27B) with respect to dielectric multi-layers and reflected wave length filed such that ZrO2 etc. can be used as a high refractive index film and MgF2 etc. can be used as a low refractive index film and each film is formed with electron beam deposition (see "detailed Description", paragraph [0061]).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention wad made to utilize Taketo's high and low refractive index films with respect to application of reflected wavelength (which is partly controlled by the refractive index) as illustrated in Fig. 1 for the purpose of deriving .the three colored lights (1G, 1R, 1B) as taught by Taketo.

Note that since a refractive index is one of the factors affecting reflected wavelength of dichroic miirors (27G, 27, 27R, 27B), and since dielectric multi-layers such that ZrO2 and MgF2 have changeable refractive index composition, it would be obvious to one of ordinary skill in the art the changing the magnitude of an application of electric field would result in a changed refractive index.

Regarding claim 9, Taketo teaches electrodes formed of Indium Tin Oxide (under "Detailed Description", page 7, 60th paragraph, ITO).

Regarding claim 11, Taketo teaches the color modulator wherein said voltages applied to said electrodes are operable to filter an incident white light beam into a light beam sequentially comprised of at least three colors (see the abstract, light control layers (23M, 23C, 23 Y) also contain dichroic mirrors (27G, 27R and 27B) whose reflection wavelength regions are made of respective green red and blue. Also see under "Detailed description", page 9, 71st & 72nd paragraphs).

3. Claims 8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taketo et al. (Japanese Publication # 10221710) in view of Mochizuki et al (USPN 5317429)

Regarding claim 12, Taketo teaches a color modulator (see the abstract, light control elements (10G, 10R, 10B)) comprising a substrate; and (see the abstract, a substrate 11 or 12). alternating layers of electrodes and dielectric materials (pixel electrodes, (21, 22), and light control layers (23M, 23 C, 23 Y) which contain dielectric multilayer film) wherein voltages applied to said electrodes are operable to filter an incident white beam of at least one of at least three colors (see the abstract, light control layers (23M, 23C, 23 Y) also contain dichroic mirrors (27G, 27R and 27B) whose reflection wavelength regions are made of respective green red and blue. Also see under "Detailed description", page 9, 71st & 72nd paragraphs).

Taketo does not teach dielectric material being selected from the group consisting of LiNbO3, LiTaO3, NH4H2PO4, KH2PO4 and CdTe.

Mochizuki on the other hand teaches a cladding layer, which may be any material whose refractive index can be changed by the electro-optical effect and is, for example, a ferroelectric substance such as LiNbO3 (col. 4, lines 43-50)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Taketo' display system shown in Drawing 1, to adapt Mochizuki's layer, LiNbO3 as a dielectic layer because the use of layer, LiNbO3 helps function a liquid crystal display device as taught by Mochizuki (col. 6, lines 5-20).

Regarding claim 8, Mochizuki as mentioned above teaches a cladding layer, which may be any material whose refractive index can be changed by the electro-optical effect and is, for example, a ferroelectric substance such as LiNbO3 (col. 4, lines 43-50).

Regarding claim 13, Taketo teaches electrodes formed of Indium Tin Oxide (under "Detailed Description", page 7, 60th paragraph, ITO).

(10) Response to Argument

Independent Claim 7

Appellant argues that the cited reference, Taketo et al. (Japanese Publication # 10221710) does not teach voltage being applied to alter a refractive index of the dielectric material between the electrodes. The examiner respectfully disagrees with appellant's argument.

Taketo et al teach the main wavelength and bandwidth of a reflected wavelength field of dichroic mirrors (27G, 27R, 27B) are controllable by the thickness of the film, ratio of each

refractive index and ratio of thickness (see paragraph [0062] under "Detailed Description"). Taketo also teaches setting of dichroic mirrors (27G, 27R and 27B) with respect to dielectric multi-layers and reflected wave length filed such that ZrO2 etc. can be used as a high refractive index film and MgF2 etc. can be used as a low refractive index film and each film is formed with electron beam deposition (see "detailed Description", paragraph [0061]).

Note that since a refractive index is one of the factors affecting reflected wavelength of dichroic miirors (27G, 27, 27R, 27B), and since dielectric multi-layers such that ZrO2 and MgF2 have changeable refractive index composition, it would be obvious to one of ordinary skill in the art that changing the magnitude of an application of electric field would result in a changed refractive index.

Independent Claim 12

Appellant argues that the cited references, Taketo et al. (Japanese Publication # 10221710) and Mochizuki et al (USPN 5317429) alone or in combination do not teach dielectric material being selected from the group consisting of LiNbO3, LiTaO3, NH4H2PO4, KH2PO4 and CdTe. The examiner respectfully disagrees with appellant's argument.

Mochizuki teach a cladding layer, which may be any material whose refractive index can be changed by the electro-optical effect and is, for example, a ferroelectric substance such as LiNbO3 (col. 4, lines 43-50)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Taketo' display system shown in Drawing 1, to adapt Mochizuki's layer,

LiNbO3 as a dielectic layer because the use of layer, LiNbO3 helps function a liquid crystal display device as taught by Mochizuki (col. 6, lines 5-20).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Taketo' display system shown in Drawing 1, to adapt Mochizuki's layer, LiNbO3 as a dielectic layer because the use of layer, LiNbO3 helps function a liquid crystal display device as taught by Mochizuki (col. 6, lines 5-20).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Abbas abdulselam

Examiner

Art Unit 2629

Conferres

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